

Chico

**Golden
Empire
Amateur
Radio
Society, Inc.**

www.gearsw6rhc.org

"Dedicated to Public Service"

THE RADIATOR

W6RHC
IRLP #8170

P.O.Box 202 Chico, CA 95927

January 2021 Newsletter

GEARS Founded August 13, 1939

I'm feeling optimistic as we head into 2021. Many of our members have said how much they miss face to face meetings. Believe me, I miss them too. Now that a vaccine is out, hopefully things will settle down in a few months and we can resume to face to face meetings when it's safe to do so.

Our December Zoom meeting was very enjoyable. We elected officers for next year and I'm honored to serve another year as President. Paul Stewart, N6PAS will serve as Vice President, Kathy Favor, K6FAV will continue as Treasurer, Dale Anderson KK6EVX will continue as ARES officer, Bennett Laskey, K6CEL, Kent Hastings, WA6ZFY and Rich Astley, N3UOR will serve as Board Directors. Tom Rider, W6JS will continue as VEC.

The main topic at the meeting was a round-table discussion of why we became Hams and what we enjoy about this hobby. You can watch the meeting on YouTube: <https://youtu.be/l-qXlvhl9jc>

Tom Rider, W6JS and his wife are recovering from the COVID virus. Please include them in your thoughts and prayers.

GEARS 2021 membership is due. If you haven't already done so, please pay them to help support the club.

Gene Wright, WA6ZFY is planning to hold an antenna workshop sometime in February. We will let you know the details.

I'm looking forward to a better year. I hope to see all of you sometime soon. Take care and stay safe.



'73
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Join GEARS on Facebook
www.facebook.com For timely
news and additional information.

January 2021 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3 8pm OARS Net VEC Testing Chico	4 7pm GARS Net 8pm ARES Net	5 7:30pm GEARS Net 7pm ARES meeting	6	7 7pm PARS Net 7:30pm Simplex Net	8 7pm GARS & OARS Meetings	9 GEARS Board Meeting online
10 8pm OARS Net	11 7pm GARS Net 8pm ARES Net	12 7:30pm GEARS Net	13	14 7pm PARS Net 7:30pm Simplex Net	15 7pm GEARS Meeting online	16
17 8pm OARS Net	18 7pm GARS Net 8pm ARES Net	19 7:30pm GEARS Net	20	21 7pm PARS Net 7:30pm Simplex Net	22	23 9am OARS Breakfast
24 8pm OARS Net 31 8pm OARS Net	25 7pm GARS Net 8pm ARES Net	26 7:30pm GEARS Net	27	28 7pm PARS Net 7:30pm Simplex Net	29	30

VEC Testing, FCC License Exam available by appointment. For information or registration call Tom Rider, W6JS 514-9211

Chico Breakfast Canceled until things settle down with the COVID-19 virus.

GEARS Board Meeting 2nd Saturday online.

OARS Meeting Second Friday of the month, TBD (To Be Determined)

GARS Meeting Second Friday of the month, TBD

Butte ARES Meeting 3rd Tuesday, TBD Contact Dale Anderson, KK6EVX 826-3461 for more information.

GEARS Meeting, third Friday of the month, online till further notice pm, meeting at 7:00 pm.

OARS Breakfast 4th Saturday of the month TBD

NETS:

OARS Club Net Sunday 8pm 146.655 Mhz - PL 136.5

GARS Club Net: Monday, 7:00 pm 147.105 MHz + PL 110.09

Butte ARES Net Mondays 8pm 145.290 MHz - PL 110.9

Yuba Sutter Club Net Monday 7pm 146.085 MHz + PL 127.3

GEARS Club Net Tuesdays 7:30 PM 146.850 MHz - PL 110.9

PARS Club Net Thursday 7pm 145.290 - PL 110.9

Simplex Net Thursday 7:30 p.m. 146.52 no tone

Yuba Sutter ARES Net Thursdays 7pm 146.085 MHz + PL 127.3

Sacramento Valley Traffic Net Nightly 9:00 PM 146.850 MHz - PL 110.9

GEARS Repeaters

GEARS West on St. John

145.410 MHz PL is 123.0 Negative offset.

PL both input and output (CTSS)

GEARS East in Forrest Ranch

146.850 MHz Negative offset. PL 110.9 CTSS

440.650 MHz Plus offset, PL 110.9 Hz



200 km Long range FM simplex with cheap Chinese handheld VHF/UHF

By Mile Kokotov Z33T

On Sunday, October 20, 2019, the weather was nice, sunny and warm, so together with Darko (Z33JBT) and Vane (the president of our club), we went to the mountain Osogovo (Macedonia). We took our cheap Chinese radio stations and a few handmade VHF and UHF antennas with us.

From the mountain we maintained a large number of simplex radio communications with radio amateurs from Macedonia, Serbia and Bulgaria.

Bobby (Z33PB) from Bitola, had climbed the mountain Baba, at about 1900 meters above sea level. We listened to him very clearly, as if he were close to us, even though the distance was about 150 kilometers. Then we listened to Igor (Z32DIF), who had climbed Mount Korab, about 150 km from our location. We have also heard signals from several radio amateurs from Skopje, Negotino, Probistip, Milan, YU1PRM called from Serbia. He was (together with several other radio amateurs from Serbia), climbed on Mountain Rtanj, about 200 km from us. We listened him great even though he used a handheld radio station and only 2.5W of RF power. We also heard signals from several other radio amateurs from Bulgaria and Serbia Darko, Z33JBT, made a new friend from Bulgaria. It was Emil from Bansko, who expressed a desire, when he comes to Macedonia, to visit our radio club.

We used different antennas. In addition to the original "rubber duck" antennas, we also worked with a magnetic car antenna, then with homemade Moxon antenna and J-Pole antenna. The Moxon antenna proved to be the best for 2 meter simplex.

This video shows part of the radio connection with Milan, YU1PRM, which appeared from the top of Mountain Rtanj in Serbia, at a distance of about 200 km from us. We both worked with handheld radios with low RF output power.
<https://youtu.be/4CROvRHs-cU>

The author, Mile Kokotov Z33T has a master's degree in technical sciences, with almost 40 years of experience in RF technology and is the President of the Amateur Radio Association of Macedonia. <https://www.qsl.net/z33t/index.html>

How to build a Moxon antenna for 2 meters: <https://qrznow.com/building-2-meter-vertical-moxon/>

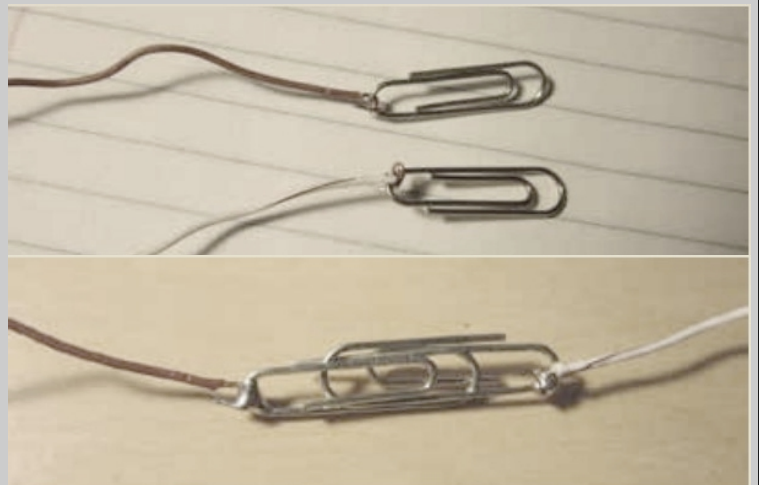


Pro Tip: Paper Clip Connectors

If you need some quick and cheap connectors for a project try paper clips! They are really cheap and they slide together and come apart really easily.

To make these connectors, you can solder the wire to the clips, or you can also twist the wire onto it and then cover it with hot glue.

To connect the paper clips just slide them together on the open end, you now have a good connection. If you need connectors that are insulated you can use paper clips that have a coating on them and scrape off the coating on the sections that would make contact.



Two Meter Iron Coat Hanger Antenna

By Stephen McDermott, K6AKF

Hams are inventive creatures, especially when it comes to antennas. We seem to have an innate ability to build antennas with the least amount of parts, cost and radiate on the frequency it was designed for.

Being part of this fraternity, I have built many HF dipole antennas from 10 to 80 Meters and they have always worked very well and with stood nature's wrath without falling and returning to the ground. However, I have never made a $\frac{1}{4}$ wave antenna for 2 meters. So, to correct this oversight, I decided to approach this new venture.

Design

The design of this antenna would be making a 2-meter $\frac{1}{4}$ wave antenna out of parts that I had on hand, making it flexible, aerodynamic efficiency so it could withstand a strong wind's and not be bent out of shape from weather events. The radiating element & radials would be attached to a five-hole SO-238, and hopefully with a low SWR.

Frequency & Parts Frequency

Frequency: 144 to 148

Parts would consist of a stiff wire, bendable when stressed, and returns to its original position. Stainless steel hardware (4-40) consisting of bolts, washers, lock washers and nuts, one five hole SO-238 new or used, a good weather sealant to seal up the hardware and the bottom of the radiating element.

Construction

I did a little searching on GOOGLE for "2-meter quarter wave antennas" and found a plethora of information, styles, and construction methods. Some were using Romex house wire, 14-gauge copper weld antenna wire, welding wire; aluminum TV tubing, ect. None of them seem to work for my construction application.

Then the light bulb went off in my brain. Iron coat hangers!

I found 6 that were just hanging around in my closet (pardon the pun; that was just too obvious to pass up). One was the old iron style heavier, larger gauge; the other five were smaller gauge, the newer variety; with white coatings on them. After gathering all of them, I cut off the "hook" of each of them and then straighten them out. The smaller diameter ones were easier to bend and some of the coating chipped off as I bent them straight. The old iron one was tougher; it required a vise grip and a pair of plyers to get it straightened out. I did notice the older iron hanger had a slight coating on the metal, I guess this was on there to prevent rusting.

Doing the Math: Measuring Twice, Cutting Once

As with all antenna projects determining the length of your antenna to the frequency you want it to resonate is most important. So, to figure out the length of the antenna's vertical and radial elements, I use the following formula below.

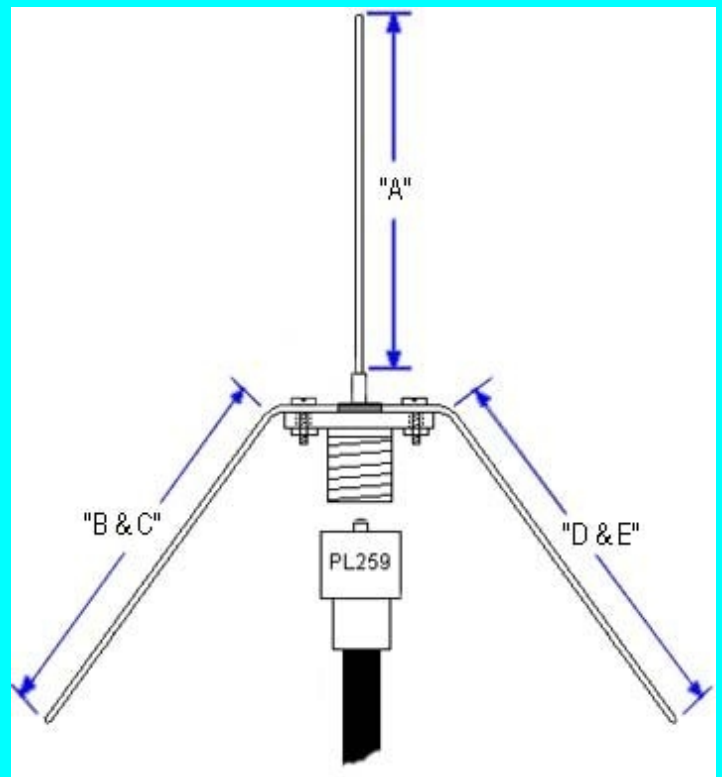
Formula for length in inches: $2808 \div 146.000 \text{ MHz}$. The vertical "A" calculated out to 19.232876, so I measured and cut the vertical to 19.25". For the radials, "B&C" and "D&E" I used the same formula, $19.232876 + 5\%$ they calculated out to 20.245132, I measured and cut them to 20.25". (Some calculators may display 20.194519 for the radials length) I'm not sure of the discrepancy between my two calculators.

I made a hook on one of the ends of the 4 radials, it kind of looks like a "?". This is where the 4-40 screws will go through the SO-238.

I discovered the larger wire diameter would not fit in the solder pin on the back of the SO-238, so it was used for one on the radials. Before I soldered the vertical wire to solder pin, I removed the coating from one end of the wire and tinned it and tinned the post on the SO-238 and soldered it on.

Putting it All Together

Before I did anything to start to put the antenna together, I neutered the bite of the radial's tips. I removed the black tape I had put on the ends and replace them with a dab of clear hot glue on the ends took the teeth out of these little pokers.



To have continuity between the radials and the SO-238 I had to scrape all the coatings from all the rods that were going to be in contact with the SO-238. This was easily accomplished by some sandpaper and elbow grease. The last step to do to complete radials before mounting them is to bend them to a 45° angle. Having a protractor was a necessity of getting the angle correct at 45°.

By bending the radials down to a 45° angle, you are changing the impedance of the antenna. At 45° the antennas impedance matches that of the coax cable at about 50 Ohms.

The next part of this construction was to attach the radials to the SO-238. It is important that I kept a 90° angle between the four radials and 180° opposed, directly in line with each other for the best pattern. I sealed the top of the SO-238 with marine sealant and all the areas where the coatings had come off when bending. It worked very well for this application.

Sweeping the Antenna

This last step of this build is to sweep the antenna to see if resonate at the desired frequency between 144 and 148 MHz and check the SWR. My antenna analyzer told me the SWR was no higher than 1.5. Taking parts of what I could find in my junk boxes, closet, and some old PVC plastic pipe and at a minimal cost and making a working 2-meter antenna.

Unfortunately, this antenna was lost in the Camp Fire.

Stephen McDermott, K6AKF has been a GEARS member for over 45 years. Stephen lost his home in the camp fire and now has a home in Chico.

FCC approves new ham and GMRS license fees

The FCC has just approved new license fees for Amateur Radio and the GMRS. These fees are actually lower than the original fees proposed in August, which were highly contested by hams, but welcomed by GMRS licensees. While the new FCC license fees may alleviate some of the sticker shock from the original fees proposed by the Commission, it is welcome news for fans of the GMRS.

According to the FCC Report and Order released December 29, 2020, Amateur Radio license fees will now cost \$35. This same fee will apply to new licenses, renewal licenses, vanity call signs, and license modifications. Previously, no fees were collected for ham licenses or vanity call signs issued to amateur radio operators, so technically it is a significant change. However, it is considerably less than the \$50 fees originally proposed by the Commission, so it should be of some comfort to hams.

On the brighter side, a GMRS license will now cost significantly less than before. Up to now the application fee for a GMRS license was \$70. With this Report and Order, the new GMRS license fee will be only \$35, which is \$15 less than the proposed fee and half the cost of the fees previously charged by the FCC. The license is still valid for 10 years and covers an entire family.

The amendment to the proposed fees was largely due to the comments and feedback the Commission received in response to the proposal in August. While the FCC disagreed with many of the assertions from hams and the ARRL why the original proposed \$50 fees should not be charged at all, it did acknowledge on important point brought up by many that the fees did not fairly represent the amount of effort required to process the license applications, which is largely automated.

As the FCC put it, "We agree that the applications for amateur licenses, and other personal licenses, are largely automated, and for that reason the cost-based fee we adopt is only \$35. With respect to the amateur licenses, while review is highly automated, staff must maintain the processing system to ensure applicants are qualified, vanity call sign procedures are followed, and off-lined applications are individually reviewed. Therefore, we cannot conclude that there are no costs involved in processing the applications and we do not have the discretion to exempt this service from application fees."

Since the same is true with the processing of GMRS licenses, the Commission amended the proposed \$50 fee for that as well, bringing the cost of a GMRS license down to \$35.



GEARS 2021 Dues

If you haven't already done so, please pay your GEARS 2021 Dues. Your contribution covers operating costs of our three repeaters, helps support ARES and helps keep amateur radio alive in this area. Dues are \$20, or \$30 for supporting membership. If you are able to contribute more you can choose a Century membership of \$100.

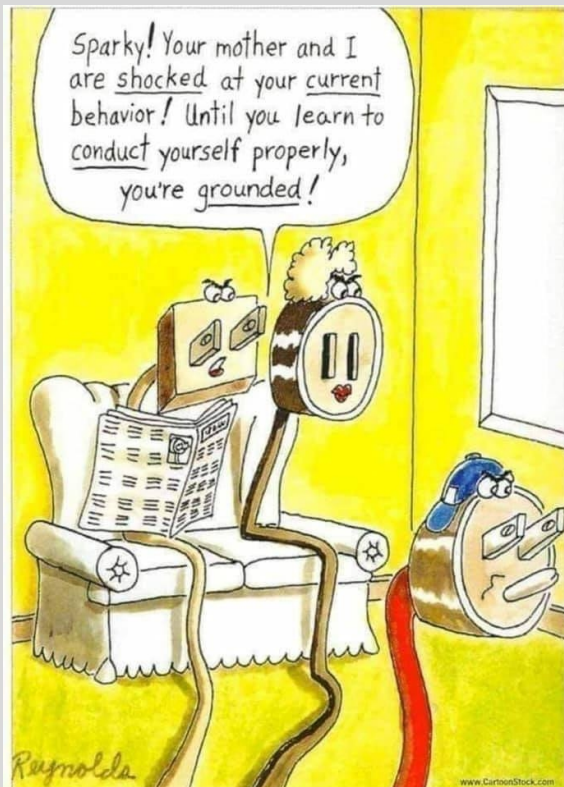
You can now pay online by PayPal at: <http://paypal.me/w6rhc>

Club Officers:

President.....Jim Matthews, K6EST
Vice-President.....Paul Stewart, N6PAS
Secretary.....Open
Treasurer.....Kathy Favor, K6FAV
ARES.....Dale Anderson, KK6EVX
Director.....Bennett Laskey, K6CEL
Director.....Kent Hastings, WA6ZFY
Director.....Rich Astley, N3UOR
Past President.....Tom Rider, W6JS
VEC.....Tom Rider, W6JS

GEARS Radiator past issues are available at:

<https://drive.google.com/drive/folders/0B-jPu0P0RkymZ2Q1WDR6THZLNmM?usp=sharing>



I'd like you to marry me later.
Right now, DX conditions
on 21 MHz are too good.



No, but I had a
CB license once.